

GOVERNMENT/INDUSTRY CHARTING FORUM
Instrument Procedures Group
October 25-26, 2004
HISTORY RECORD

FAA Control # 04-02-258

SUBJECT: Vertical Navigation (VNAV) Approach Procedures Using DA(H);
OpSpec C073

BACKGROUND/DISCUSSION: Flight Standards issued Handbook Bulletin for Air Transportation (HBAT) 99-08, titled "Vertical Navigation (VNAV) Approach Procedures Using DA(H); OpSpec C073" on July 13, 1999. This Bulletin provides the applicable procedures, operating criteria, and revisions to the operator's operations specifications (OpSpecs), if applicable, to permit additional use of Vertical Navigation (VNAV) capability of Flight Management Systems (FMS) for instrument approach. This bulletin defines a new term, "decision altitude" (DA(H)) for the use of VNAV in conducting certain instrument procedures. Additionally criteria and procedures are provided to authorize the use of the minimum descent altitude (height) (MDA) as a decision altitude (height) [DA(H)] for certain existing instrument approach procedures meeting specified obstacle assessment provisions. This bulletin is applicable to operators conducting operations in accordance with Title 14 Code of Federal Regulations (14 CFR) parts 121, 125, 135, or 129.

It is apparent to AFS-410 that certain technical aspects of this Bulletin are flawed. Specifically, the Bulletin does not provide satisfactory guidance to operators on the method of determining if a visual segment assessment has been made by the FAA in which no penetrations to the 34/1 surface were identified, or the appropriate criteria for industry assessment of the visual segment. In addition, it allows *carte blanche* application of the operational concept of using the MDA as a DH in cases where the underlying non-precision approach may not be suitable. Finally, the Bulletin provides no authority for Part 91 operators to use this capability.

The operational environment has also changed in the intervening five years. The FAA has aggressively pursued the implementation of LNAV/VNAV procedures with DHs, including the development of 715 such procedures as of September 2004.

A PowerPoint presentation concerning this issue is provided.

RECOMMENDATION: The instrument procedures group needs to consider this issue with the goal of developing a strategy to offer this capability to a wider set of users (include Part 91) and to accurately identify those procedures which can support the use of the MDA as a DH by LNAV/VNAV equipped aircraft.

COMMENTS: This affects FAA OpSpecs, FAA Handbooks and Orders, the Aeronautical Information Manual, the Aeronautical Information Publication, and Charting.

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Date: October 25, 2004

INITIAL DISCUSSION (Meeting 04-02): New issue introduced by Hooper Harris, AFS-410. AFS-410 is concerned that certain technical aspects of Flight Standards Handbook Bulletin for Air Transportation (HBAT) 99-08 may be flawed. Specifically, the Bulletin introduces the term DA(H) for the use of VNAV in conducting certain IAPs. However, it does not provide satisfactory guidance to operators on the method of determining if a visual segment assessment has been made by the FAA to validate there are no penetrations to the 34:1 surface, or the appropriate criteria for industry assessment of the visual segment. In addition, it allows *carte blanche* application of the operational concept of using the MDA as a DA in cases where the underlying non-precision approach may not be suitable. Finally, the Bulletin provides no authority for Part 91 operators to use this capability. It was pointed out by representatives of Jeppesen that these actions by FAA represented a major impact on Jeppesen since the company responded years ago, and at the insistence of many Part 121 and 135 operators, took action to include applicable notations on its IAP charts based on the FAA's original HBAT 99-08 and associated criteria. The action was made at the request of the Air Transport Association and several major airlines/operators who incorporated VNAV operations and the 'DA in lieu of MDA maneuver' extensively into their pilot training programs. Hooper stated that AFS-410 will lead an ad hoc group to refine technical standards for pilot use of a MDA as a DA and develop charting standards to indicate where the application may be used. In addition to the AFS-410 staff, volunteers for the ad hoc group include Michael Riley, NGA, Debbie Copeland, NACO, Brad Rush, NFPO, Tom Schneider and Bill Hammett, AFS-420, Randy Kenagy, AOPA, Mitch Scott, Continental Airlines, Ted Thompson, Jeppesen, Kelly Mckee, MITRE, Kevin Comstock, ALPA, Valerie Watson, NFDC, and Bob Conyers, NBAA. Ted questioned when and how the subject would be brought to the attention of the ATA FMS/RNAV Task Force and ATA Chart & Data Display Committees. Hooper recommended and the ACF members agreed that the ad-hoc working group should first examine the issues. Hooper also requested that all participants review the HBAT and provide input through the ACF-IPG. A copy of Hooper's briefing slides is included here . **ACTION: AFS-410.**

MEETING 05-01: Vinny Chirasello, AFS-410, briefed that no action has been taken on this issue. AFS-410 is undergoing a management change and the staff specialist who was assigned this project passed away. The project has been re-assigned; however, the ad-hoc group has not met. Randy Kenagy, AOPA, asked if the group membership is the same and Vinny replied yes. **ACTION: AFS-410.**

MEETING 05-02: Vinny Chirasello, AFS-410, briefed that his office is in the process of re-writing HBAT 99-08 to require a clear 34:1 surface for use of MDA as DA. Discussion addressed the methodology for indicating a clear 34:1 surface. Current charting specifications use a "stipple" (shaded area from MDA to threshold) to indicate a clear 34:1 for RNAV approaches. However, there are no plans under consideration for a charting specification for conventional approaches. Ted Thompson, Jeppesen, reminded the group that AFS-410 took an IOU when the issue was first presented at meeting 04-02 convene an ad hoc group to refine technical standards for pilot use of a MDA as a DA as well as to develop charting specifications to indicate when the application may be used. However, the group has never convened; ergo, Jeppesen has made no charting changes. Vinny responded that his office believes the HBAT should be revised prior to calling a meeting. (**Editor's note:** Volunteers for the ad hoc group are listed in the discussion at meeting 04-02 above.) **ACTION: AFS-410.**

MEETING 06-01: Vincent Chirasello, AFS-410, briefed that the status is unchanged. Hopefully, staff additions will expedite a response. He also noted that the effort to harmonize minimums may impact the issue. Ted Thompson, Jeppesen, noted that the resolution must consider the implications regarding how many VNAV procedures can be in a database. Harmonized minima will allow credit for a constant descent final approach (CDFA); therefore, if the vertical descent angle (VDA) is removed, what is the impact on the database? Ted also reminded Vinnie that AFS-410 has still not convened the ad-hoc committee. Vinnie responded that the group would be convened when the draft HBAT 99-08 was complete. **ACTION: AFS-410.**

MEETING 06-02: Robert (Rico) Carty, AFS-410, briefed that after the July 11-12 FAA internal meeting on the issue, it was tabled due to higher priority taskings. The issue is still alive and the group is scheduled to meet again. Ted Thompson, Jeppesen, asked whether the issue is being addressed through the OCP. Jeppesen and other chart makers may have concerns with constant descent final approach (CDFA) minimums. The question is what type documentation will FAA provide to specify what type CDFA methods are allowed. Jeppesen's concern was raised because of special charting applications as a result of NBAA and ATA input. Tom Schneider, AFS-420, responded that the issue has not been presented to the OCP due to internal FAA concerns. **ACTION: AFS-410.**

MEETING 07-01: Ernie Skiver, AFS-420, briefed that no update was available. Ted Thompson, Jeppesen, stated Jeppesen still has issues with publishing a constant descent final approach (CDFA) angle. Jeppesen currently provides a VNAV angle even when one is not indicated on the source 8260-series form. Ted further stated that Jeppesen would like written guidance when CDFA is allowed. In other words, will the proposed FAA guidance allow for use of a commercially developed VNAV angle for the "DA" in lieu of "MDA" maneuver? Tom Schneider, AFS-420, stated that FAA intends to consult with the ICAO OCP before issuing a change to HBAT 99-08 to ensure compatibility with the FAA/JAA harmonized minima effort. Wally Roberts, NBAA, stated that if WAAS is active all Garman receivers will receive vertical guidance. AFS-410 will continue to work the issue and revise HBAT 99-08. **ACTION: AFS-410.**

MEETING 07-02: Mark Steinbicker, AFS-470, briefed that there has been no progress on this issue since the last meeting due to related issues that must be resolved first. TERPs change 20, which will allow some operators visibility reductions for constant descent final approach (CDFA) must be finalized prior to addressing HBAT 99-08 and developing pilot educational material. Ted Thompson, Jeppesen, stated that since CDFA will allow use of baro-VNAV to use DA in-lieu-of MDA, Jeppesen would like a listing of what CDFA methods are acceptable to gain the visibility reduction. Mark said that AFS is planning an Advisory Circular (AC) to address DA vs. MDA and CDFA techniques. Rich Boll, NBAA, asked whether Part 91 operators would be included. Mark responded that Part 91 operators are excluded from the DA vs. MDA; however CDFA will apply except for CATs A and B. Rich responded that there are many corporate jets that are CAT B and NBAA does not want to see CAT B excluded. Tom Schneider, AFS-420, stated that HBAT 99-08 does not apply to Part 91. Part 91 was excluded because of training requirements; however, Part 91 operators could get approval through their FSDO. Mark suggested that FAA should start considering possible charting specification changes as soon as possible. John Moore, NACO, recommended that the issue not be brought before the Charting Group until all ops issues are resolved. Mark stated that he did not want charting implications to delay any initiatives. John replied that early consideration is acceptable; however, charting personnel

must be involved in the initial policy. Ted Thompson, Jeppesen, stated that perhaps an ad hoc sub group would be the way to approach the issue. No conclusions were reached. The issue will be jointly worked by AFS-410 and 470. **ACTION: AFS-410 and AFS-470.**

MEETING 08-01: John Swigart, AFS-470, briefed that there has been little progress on this issue since the last meeting due to related issues that must be resolved first. He further briefed that work is continuing on the 120-series Advisory Circular. Ted Thompson, Jeppesen, asked why HBAAT 99-08 was removed from publication and what document replaced it. John will check this out and provide the information to Ted. AFS-470 will continue to work the issue and report. **ACTION: AFS-470.**

MEETING 08-02: Tom Schneider, AFS-420, provided the group a copy of an October 7 memorandum from Harry Hodges, Chair of the US-IFPP to John McGraw, Manager AFS-400. The memorandum was prepared in response to a request for the US-IFPP to review the issue of treating a MDA as a DA without proper evaluation of the procedure. Currently, the operator is required to conduct a visual segment evaluation; however, there has been no requirement to conduct a missed approach evaluation. This is especially significant when a turn is required as the missed approach is made earlier when using the MDA as a DA. The memorandum provides draft guidance & criteria for operators to analyze the area below MDA to runway threshold and also to evaluate the missed approach. Further refinement of the 'DA in lieu of MDA' criteria is planned. Mark Steinbicker, AFS-470, briefed that his office will evaluate the US-IFPP memorandum and develop operational guidance. He added that his office is working on draft AC 120-CDFA (constant descent final approach), which will define CDFA and address general operations per TERPS Change 20 and Op Specs. Once the draft is further developed, Mark stated that industry input and comments would be requested. There is no definite timeline for completion, but the end of the year is targeted. Mike Frank asked why the memorandum only relates to FMS and does not include GPS. Tom agreed to take this question back to the US-IFPP. Mark also noted that charting specifications would have to be developed to indicate which procedures qualify for CDFA. Ted Thompson, Jeppesen, requested that the FAA approach procedure source be clear when the criteria for the maneuver is met so that Jeppesen chart notes are correct. Rich Boll, NBAA, questioned why the "DA in lieu of MDA" maneuver is only allowed for Part 121 & 135 operators. His organization requests that Part 91 operators also be allowed to use the maneuver. This position is also supported by AOPA. Mark responded that they are considering expansion to include Part 91. Tom added that Part 91 operators can currently get authorization through a LOA from their FSDO. He added that the US-IFPP memorandum was only the beginning step to resolve this issue. There are many tentacles that have yet to be addressed. Tom agreed to take the FMS vs. GPS question to the US-IFPP and AFS-470 will evaluate the US-IFPP memorandum and develop guidance. **ACTION: AFS-420 and AFS-470.**

MEETING 09-01: Tom Schneider, AFS-420, briefed that he forwarded the FMS vs. GPS question to the US-IFPP. The US-IFPP response, which was prepared by Jack Corman, AFS-420, is quoted: *"the intent of the memo was actually independent of the means of vertical guidance; therefore, GPS is acceptable. AFS-410 reacted to the US-IFPP memo of concerns by adding verbiage to alleviate turning missed approach concerns (using any means of vertical guidance). Visual segment evaluation discussions are still underway."* Catherine Majauskas, AFS-470, briefed that there are no new developments to report out of AFS-470. Rich Boll, NBAA, stated that it is almost impossible for corporate aircraft to assess the 34:1 surface requirements in the US-IFPP memorandum and asked if it would be

possible for the NFPO to perform a 34:1 assessment on all US IAPs, not just new RNAV IAPs. This would support expanded use of the CFDA technique and the corresponding use of 'DA in lieu of MDA' maneuver for suitably equipped and trained operators. Tom responded that there is an initiative to preclude operators having to determine whether there is a clear 34:1 surface, but it is currently limited to RNAV approaches. FAA RNAV IAPs indicate whether the 34:1 surface is clear or not on the source 8260-3. If the surface is clear, FAA charts indicate this by depicting a 'stipple' in the profile view. Jeppesen publishes this information via a chart note. Brad Rush, NFPO, stated there are over 16,000 IAPs in the US NAS, and the effort to perform a 34:1 obstacle assessment to ensure clearance on all IAPs (RNAV and conventional) would be immense. The workload and current resources in the NFPO will not allow this to happen anytime soon. Tom also briefed the criteria for performing a 'DA in lieu of MDA maneuver' previously contained in FAA HBAT 99-08 have since been incorporated into FAA Order 8900.1, *All Weather Operations in Terminal Areas*. AFS-470 will continue to evaluate the US-IFPP memorandum and develop guidance. AFS-420 will continue to follow the issue through the US-IFPP and report. **ACTION: AFS-470 and AFS-420.**

MEETING 09-02: Catherine Majauskas, AFS-470, briefed that that the AC regarding Controlled Descent Final Approach (AC-CDFA) has been completed and is in FAA internal coordination. They will continue to develop guidance and keep the ACF-IPG updated. **ACTION: AFS-470.**


MEETING 10-01: Catherine Majauskas, AFS-470, briefed that that the AC regarding Controlled Descent Final Approach (AC-CDFA) has been completed and is still in FAA internal coordination. OpSpec C073 will be updated as needed and the CDFA penalty language has been removed from the new OpSpec C052 pending further guidance. **ACTION: AFS-470.**

MEETING 10-02: Kel Christianson, AFS-470, briefed that C073 is being rewritten and guidance added to FAA Order 8900.1, *Flight Standards Information Management System (FSIMS)*, Volume, 3 Chapter 18. These changes will provide guidance on specifications required for an FAA visual obstacle assessment. The guidance will also help industry determine criteria for visual assessment. Changes to OpSpec and introduction of AC-CDFA will provide guidance for the use of an MDA as a DA. Kel added that AFS-470 does not plan to chart MDA as a DA on IAPs as appropriate guidance is covered in US Air Carrier OPS Specs. Additionally, FAA does not have plans to issue C073 to Part 91 operators due to oversight issues. Mike Frank, AFS-52 added that C073 is issued to those Part 91 operators that have MSpecs. Rich Boll, NBAA, stated that the original HBAT 99-08 excluded Part 91 operators, yet some FSDOs were allowing the operation for selected Part 91 operators under a LOA. This is a contradiction in FAA policy application. NBAA supports allowing use of MDA as a DA for Part 91 through a LOA. Kel responded that more research is required. **ACTION: AFS-470.**

MEETING 11-01: Kel Christiansen, AFS-470, reported that applicable changes to Air Carrier OpSpec C073 authorizing use of DA(H) in lieu of MDA are in final stages of review and approval. He also advised that Advisory Circular AC 120-108, *Continuous Descent Final Approach*, has been updated and was effective January 20, 2011. He added that this effort included input from Jeppesen with regard to the "DA in lieu of MDA" reference notes that are included in the profile view of applicable Airway Manual approach charts. Kel

added that other than an exception for Part 91K there are no plans to allow Part 91 operators to use DA in lieu of MDA. The rationale to allow Part 91K is that they also operate under Part 135. Rich Boll, NBAA, questioned this and asked why Part 91 with large transport aircraft could not be authorized the operation under a LOA. John Swigert responded that the FAA does not have plans to expand or exert additional oversight to include Part 91 operators for using a DA maneuver in lieu of MDA. Rich questioned what oversight would be necessary under an LOA. John responded that the decision had been made, Part 91 (except for Part 91K) is off the table. **ACTION: AFS-470.**

MEETING 11-02: Kel Christianson, AFS-470, reported that guidance updates have been approved by the AFS Document Control Board and were submitted into formal coordination on September 8, 2011. The guidance is currently in AFS-140. Kel clarified that all Part 91K operators will be able to apply for authorization. There will be no charting initiatives required as implementation will be accomplished through OpSpecs. AFS-470 will track the guidance until published and keep the ACF aware of the status. **ACTION: AFS-470.**

MEETING 12-01: Kel Christianson, AFS-470, reported that guidance updates have been approved by the AFS Document Control Board and were submitted into formal coordination on September 8, 2011. The document is currently at AFS-1 for signature. Rich Boll, NBAA, stated that his organization is still concerned over the lack of opportunity for Part 91 transport aircraft to take advantage of the option. Rich added that NBAA had forwarded the specific request and associated rationale to AFS-470 on March 29, 2012. A copy of that correspondence is included here  at the request of Bob Lamond, NBAA. Mark Steinbicker, AFS-470, and Bob agreed that their respective organizations would discuss the issue off line and report at the next meeting. Status changed from "Open Pending Publication" to "Open". **ACTION: AFS-470.**

Editor's Note: The NBAA representative advised the recording Secretary that updated OpSpec C073 was released on 27 April, 2012. It should be noted the OpSpec is limited to Part 91K, 121, 125, and 135 operators; there is no provision for part 91 participation.

MEETING 12-02: Kel Christianson, AFS-470, briefed that updated OpSpec C073 was published on April 27, 2012, and that a revision is in progress targeted for February 2013. He added that Part 91 is not included. Bob Lamond, NBAA, questioned why Part 91 was excluded. Kel responded that FAA has no resources to oversee inclusion of Part 91 operators. Bob stated that this is not a good reason for the denial. Tom Schneider asked participants if the agenda item can be closed since it appears there is a FAA-NBAA stalemate on the issue. Bob reiterated NBAA's objection to the exclusion of Part 91 operators and stated that the issue could be closed provided it was annotated that it was closed under NBAA objection. Tom and the group agreed. **Item CLOSED.**
